Roy F Weston, Inc
Suite 5700
700 5th Avenue
Seattle, Washington 98104-5057
206-521-7600 • Fax 206-521-7601

MEMORANDUM

DATE 14 January 1999

TO: David Bennett, WAM, U.S. EPA, Region X

FROM: Michelle Turner, Chemist, WESTON, Seattle
RMM Roger McGinnis, Senior Environmental Chemist, WESTON, Seattle

SUBJECT: Validation of Total Organic Carbon Analysis Results
Laboratory Batch K9805842
Site Duwamish River

WORK ASSIGNMENT NO 46-23-0JZZ

WORK ORDER NO : 4000-019-038-5200-00

DOC. CONTROL NO : 4000-019-038-AAAK

cc. Bruce Woods, RAP-WAM, U.S. EPA, Region X
Dena Hughes, Site Manager, WESTON, Seattle (memo only)
Kevin Mundell-Jackson, Database Management, WESTON

The quality assurance review of twenty sediment samples, laboratory batch K9805842, collected from the Duwamish River has been completed. The sediment samples were analyzed for total organic carbon (TOC) using EPA Method 9060 by Columbia Analytical Services of Kelso,WA. The samples were numbered:

98354060	98354061	98354062	98354063	98354064
98354065	98354066	98354067	98354068	98354069
98354070	98354071	98354072	98354073	98354074
98354082	98354083	98354084	98354085	98354086

Data Qualifications

The following comments refer to the laboratory performance in meeting the quality control specifications described in the technical specifications of the laboratory subcontract.

1. Holding Times

   All samples were analyzed 21 days after sample collection, exceeding the 14 day holding time criteria in the Sampling and Analysis Plan. However, prior to analysis, samples were stored frozen, thus extending the holding time Samples were analyzed within the 6 month holding time recommended by PSEP for frozen samples

2. Instrument Detection Limits

   All laboratory detection limits are equal to or less than the project-required detection limits of 200 mg/kg.

3 Initial Calibration

   A calibration verification check was analyzed prior to sample analysis Results met control limits of 90 to 110 percent recovery of the true value.

4. Continuing Calibration Verification

   Continuing calibration checks were performed initially and after every 10 samples Results for all continuing calibration checks met control limits of 90 to 110 percent recovery of the true value

5 Laboratory Method Blanks

   Laboratory method blanks were prepared and analyzed with each batch of samples TOC was detected in laboratory method blanks at a concentration of 100 mg/kg As all sample concentrations were greater than five times the Method Blank concentration, no qualifiers were assigned based on Method Blank results

6. Laboratory Control Sample

   The recoveries for TOC were within the control limits of 80 to 120 percent

7. Laboratory Duplicate Sample Analysis

   The percent relative percent difference (RPD) between replicate analytical results was within the QC limit of 35 percent

8 Matrix Spike Analysis

Matrix spike recoveries for all analytes met QC criteria of 70 to 130 percent.

9 Field Duplicate Analysis

No field duplicates were associated with this SDG

10 Sample Analysis

A cursory review of raw data was performed No problems were noted. Triplicate analyses were not performed for this SDG

11 Laboratory Contact

No laboratory contract was required.

Data Assessment

Upon consideration of the data qualifications noted above, the data are ACCEPTABLE for use except where flagged with data qualifiers that modify the usefulness of the individual values.

Data Qualifiers

U - The material was analyzed for, but was not detected

UJ - The analyte was not detected. The associated quantitation limit is an estimate because quality control criteria were not met.

J - The analyte was positively identified, but the associated numerical value is an estimated quantity because quality control criteria were not met or because concentrations reported were less than the quantitation limit or lowest calibration standard.

R - Quality control indicates that data are unusable (compound may or may not be present). Resampling and reanalysis are necessary for verification.

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: Roy F Weston, Inc
Project: Duwamish River/4000-027-001-2019-38
Sample Matrix: Sediment

Service Request: K9805842
Date Collected: 8/26-27/1998
Date Received: 8/27-28/1998

Carbon, Total Organic

Prep Method NONE
Analysis Method 9060M
Test Notes

Units PERCENT
Basis Dry

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
98354060	K9805842-001	0 05	0 006	1	NA	9/16/98	3 63	
98354061	K9805842-002	0 05	0 006	1	NA	9/16/98	1 82	
98354062	K9805842-003	0 05	0 006	1	NA	9/16/98	3 27	
98354063	K9805842-004	0 05	0 006	1	NA	9/16/98	1 92	
98354082	K9805842-005	0 05	0 006	1	NA	9/16/98	2 67	
98354083	K9805842-006	0 05	0 006	1	NA	9/16/98	2 30	
98354084	K9805842-007	0 05	0 006	1	NA	9/16/98	1 90	
98354085	K9805842-008	0 05	0 006	1	NA	9/16/98	0 70	
98354086	K9805842-009	0 05	0 006	1	NA	9/16/98	2 37	
98354064	K9805842-010	0 05	0 006	1	NA	9/16/98	1 70	
98354065	K9805842-011	0 05	0 006	1	NA	9/16/98	1 77	
98354066	K9805842-012	0 05	0 006	1	NA	9/16/98	1 06	
98354067	K9805842-013	0 05	0 006	1	NA	9/16/98	1 78	
98354068	K9805842-014	0 05	0 006	1	NA	9/16/98	1 69	
98354069	K9805842-015	0 05	0 006	1	NA	9/16/98	0 85	
98354070	K9805842-016	0 05	0 006	1	NA	9/16/98	1 90	
98354071	K9805842-017	0 05	0 006	1	NA	9/16/98	1 03	
98354072	K9805842-018	0 05	0 006	1	NA	9/16/98	2 01	
98354073	K9805842-019	0 05	0 006	1	NA	9/16/98	1 96	
98354074	K9805842-020	0 05	0 006	1	NA	9/16/98	1 29	
~~Method Blank~~	~~K9805842-MB~~	~~0 05~~	~~0 006~~	~~1~~	~~NA~~	~~9/16/98~~	~~0 01~~	~~J~~

M Modified

MQT 1/9/99

Approved By _____ Date 11/6/98

1A/020597p